

What is claimed is:

1. A multi-phase detergent tablet for use in a washing machine, the tablet comprising a first phase in adhesive contact with one or more second phases, and wherein at least the first phase is in the form of a compressed particulate solid incorporating a cogranulated detergency additive composition comprising polymeric polycarboxylate and inorganic carrier.
2. A multi-phase detergent tablet according to claim 1 wherein the cogranulated detergency additive composition comprises i) from about 0.1% to about 60%, preferably from about 1% to about 25%, more preferably from about 5% to about 20% by weight thereof of polymeric polycarboxylate, ii) from about 40% to about 99.9%, preferably from about 70% to about 99%, more preferably from 80% to about 95% by weight thereof of inorganic carrier, preferably comprising one or more inorganic salts, and optionally iii) from 0% to about 50%, preferably from about 0.5% to about 20% by weight thereof of one or more organic auxiliaries selected from chelating agents, surfactants, polymeric disintegrants, solubility aids and mixtures thereof.
3. A multi-phase detergent tablet according to claim 1 or 2 wherein the polymeric polycarboxylate is selected from i) homo- and copolymers of one or more carboxylic monomers selected from acrylic acid, methacrylic acid, alpha-chloroacrylic acid, alpha-hydroxyacrylic acid, maleic acid, itaconic acid, and mixtures thereof, and ii) copolymers of one or more of the above carboxylic monomers with one or more nonionic monomers selected from acrylamide, acrylonitrile, vinyl esters such as vinyl acetate, methylvinyl ketone, acrolein, styrene and alpha-methyl styrene, alkyl vinyl ethers, esters and amides of carboxylic monomers such as (C₁-C₄)-alkyl (meth)acrylates, and water-soluble salts and mixtures thereof.
4. A multi-phase detergent tablet according to any of claims 1 to 3 wherein the inorganic carrier is selected from alkali metal silicate, alkali metal carbonate, alkali metal bicarbonate, alkali metal sesquicarbonate, alkali metal sulfate, alkali metal tripolyphosphate, and mixtures thereof.
5. A multi-phase detergent tablet according to any of claims 1 to 4 wherein the inorganic carrier is in the form of a powder or mixture of powders having a weight-average particle size of less than about 200 μ m, preferably less than about 150 μ m.

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6. A multi-phase detergent tablet according to any of claims 1 to 5 wherein the cogranulated detergency additive composition comprises i) from about 1% to about 25%, preferably from about 5% to about 20% by weight thereof of polymeric polycarboxylate, ii) from about 30% to about 85%, preferably from about 45% to about 65% by weight thereof of alkali metal carbonate alkali metal bicarbonate, alkali metal sesquicarbonate or mixture thereof, and iii) from about 13% to about 69%, preferably from about 15% to about 50% by weight thereof of alkali metal sulfate, and optionally iv) from 0% to about 5% by weight thereof of organic chelating agent.
7. A multi-phase detergent tablet according to any of claims 2 to 6 wherein the organic chelating agent is selected from diethylenetriamine penta (methylene phosphonate), ethylenediamine tetra(methylene phosphonate) hexamethylenediamine tetra(methylene phosphonate), ethylene diphosphonate, hydroxy-ethylene-1,1-diphosphonate, nitrilotriacetate, ethylenediaminetetracetate, ethylenediamine-N,N'-disuccinate, methylglycinediacetic acid in their salt and free acid forms.
8. A multi-phase detergent tablet according to any of claims 2 to 7 wherein the polymeric disintegrant I is selected from starch, cellulose and derivatives thereof, alginates, sugars, polyvinylpyrrolidones, swellable clays and mixtures thereof.
9. A multi-phase detergent tablet according to any of claims 2 to 8 wherein the solubility aid is a water-soluble hydrated salt having a solubility in distilled water of at least about 25g/100g at 25°C, preferably selected from hydrates of sodium acetate, sodium potassium tartrate, sodium citrate and mixtures thereof.
10. A multi-phase detergent tablet according to any of claims 1 to 9 wherein the cogranulated detergency additive composition comprises at least about 5%, preferably from about 10% to about 80%, more preferably from about 20% to about 60% by weight of the tablet.
11. A multi-phase detergent tablet according to any of claims 1 to 10 wherein said one or more second phases is in the form of a compressed particulate solid and the first phase is formed by compression at a pressure greater than that of the second phase.

12. A multi-phase detergent tablet according to any of claims 1 to 11 wherein the first phase is compressed at a pressure of at least about 40 kg/cm^2 , preferably at least about 250 kg/cm^2 , more preferably at least about 350 kg/cm^2 .
- 5 13. A multi-phase detergent tablet according to any of claims 1 to 12 wherein the second phase is compressed at a pressure of less than about 350 kg/cm^2 .
14. A multi-phase detergent tablet according to any of claims 1 to 13 wherein a) the first phase is in the form of a shaped body having at least one mould therein; and b) the second phase is in the form of a particulate solid compressed within said mould.
- 10 15. A method of making a multi-phase detergent tablet according to any of claims 1 to 14 comprising admixing a liquid feed comprising the polymeric polycarboxylate with a powder feed comprising the inorganic carrier and subjecting the mixture to conditions of agitation and heat to form cocranules of the detergency additive composition.
- 15 16. A method of making a multi-phase detergent tablet according to claim 15 wherein the liquid feed and powder feed are admixed under essentially non-evaporative conditions to form a wet cocranular output stream and wherein the wet cocranular output stream is subsequently subjected to heat-drying.
- 20 17. A method of making a multi-phase detergent tablet according to claim 15 or 16 wherein the liquid feed comprises polymeric polycarboxylate in the form of a solution, dispersion, slurry or emulsion in a liquid or liquifiable medium, the powder feed comprises inorganic carrier in the form of a powder or mixture of powders having a weight-average particle size of less than about $200 \mu\text{m}$, preferably less than about $150 \mu\text{m}$, and wherein the liquid:powder feed ratio is less than about 0.5, preferably less than about 0.4, more preferably from about 0.1 to about 0.35, and especially from about 0.2 to about 0.3.
- 30 18. A method of making a multi-phase detergent tablet according to any of claims 15 to 17 wherein the powder feed comprises a mixture of alkali metal carbonate and alkali metal sulfate in a weight ratio of from about 3:1 to about 1:3, preferably from about 2:1 to about 1:1, and especially from about 1.8:1 to about 1.5:1.
- 35 19. A method of making a multi-phase detergent tablet according to any of claims 15

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to 18 wherein the cogranular detergency additive composition has an apparent density in the range from about 400 to about 1100 g/l, preferably from about 600 to about 900 g/l, a median granule size of from about 400 to about 700, preferably from about 450 to about 650 μm , and a size distribution such that no more than about 5% by weight is greater than 1500 μm and at least about 95% by weight is greater than 200 μm .

20. A method of making a multi-phase detergent tablet according to any of claims 15 to 19 comprising the steps of compacting the cogranules optionally with other detergent tablet ingredients to form the first phase of the tablet, superposing the second phase in particulate or tablet form on or over the first phase and thereafter further compacting the first phase and superposed second phase to form the final multi-phase detergent tablet.

21. A method of making a cogranular detergency additive composition comprising admixing a liquid feed comprising a polymeric polycarboxylate with a powder feed comprising inorganic carrier and subjecting the mixture to conditions of agitation and heat, and wherein the polymeric polycarboxylate is in the form of a solution, dispersion, slurry or emulsion in a liquid or liquifiable medium, the inorganic carrier is in the form of a powder or mixture of powders having a weight-average particle size of less than about 200 μm , preferably less than about 150 μm , and wherein the liquid:powder feed ratio is less than about 0.5, preferably less than about 0.4, more preferably from about 0.1 to about 0.35, and especially from about 0.2 to about 0.3.

22. A cogranulated detergency additive composition comprising i) from about 0.1% to about 60%, preferably from about 1% to about 25%, more preferably from about 5% to about 20% by weight of polymeric polycarboxylate, ii) from about 40% to about 99.9%, preferably from about 70% to about 99%, more preferably from 80% to about 95% by weight of inorganic carrier in the form of a powder or mixture of powders having a weight-average particle size of less than about 200 μm , preferably less than about 150 μm , and optionally iii) from 0% to about 50%, preferably from about 0.5% to about 20% by weight of one or more organic auxiliaries selected from chelating agents, surfactants, polymeric disintegrants, solubility aids and mixtures thereof.

23. A cogranulated detergency additive composition comprising from about 5% to about 20% by weight of polymeric polycarboxylate and from about 80% to about 95% by weight of inorganic carrier, the inorganic carrier comprising i) from about 45% to about 65% by weight of the additive composition of alkali metal carbonate, alkali metal

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bicarbonate, alkali metal sesquicarbonate or mixture thereof, and ii) from about 15% to about 50% by weight of the additive composition of alkali metal sulfate.